

Environmental Assessment Checklist

Project Name: Sliver Me Timber

Proposed Implementation Date: June, 2017

Proponent: Missoula Unit, Southwest Land Office, Montana DNRC

County: Missoula

Type and Purpose of Action

Description of Proposed Action:

The Missoula Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing The Sliver Me Timber, Timber Sale. The project is located 3 miles north of the Beavertail Exit along Interstate-90 (refer to vicinity map Attachment A-1 and project map A-2) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	Section 26 T 12N R16W	400	194
Public Buildings			
MSU 2 nd Grant			
MSU Morrill			
Eastern College-MSU/Western College-U of M			
Montana Tech			
University of Montana			
School for the Deaf and Blind			
Pine Hills School			
Veterans Home			
Public Land Trust			
Acquired Land			

Objectives of the project include:

- Salvage bark beetle infested lodgepole pine, ponderosa pine and Douglas-fir
- Salvage root rot infected Douglas-fir
- Salvage mistletoe infected Douglas-fir
- Salvage spruce budworm infested Douglas-fir
- Reduce stand density by removing trees high in defect
- Increase stand growth and vigor
- Generate revenue for the Common School Trust

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	
Clearcut	0
Seed Tree	0
Shelterwood	0
Selection	0
Commercial Thinning	0
Salvage/Sanitation	194 acres
Total Treatment Acres	194 acres
Proposed Forest Improvement Treatment	
Pre-commercial Thinning	0
Planting	0
Proposed Road Activities	
New permanent road construction	2 miles
New temporary road construction	.4 miles
Road maintenance	5 miles
Road reconstruction	0
Road abandoned	0
Road reclaimed	0

Duration of Activities:	15 Months
Implementation Period:	Seasonally 6/2017-10/2019

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010)
- And all other applicable state and federal laws.

Project Development

SCOPING:

- Date: March 24, 2016

- PUBLIC SCOPED:
 - The scoping notice was posted on the DNRC Website: <http://dnrc.mt.gov/public-interest/environmental-docs>
 - All individuals, agencies and organizations on the statewide timber sale scoping list were sent scoping notices.
 - Adjacent landowners were sent scoping notices in the mail.
 - An ad was placed in the Missoulian legal section and ran for 5 days.
- AGENCIES SCOPED:
 - MT FWP and all Montana Tribal Nations
- COMMENTS RECEIVED:
 - 5 comments (all letters) were received during the scoping period.
 - The Northern Cheyenne sent a letter indicating that James Walksalong was promoted, and gave a new contact (Teanna Limpy). It didn't include any comments regarding the timber sale.
 - *This information was forwarded to the Forest Management Bureau so lists could be updated.*
 - The Confederated Salish and Kootenai Tribes indicated that they were aware of one cultural site. 24moo167, lithic scatter. They were not sure if the site falls within the APE (It was not listed in the National Register).
 - *The DNRC Archaeologist was consulted about site 24moo167. The inventory record indicates "the site lacks the apparent artifact density and preservation integrity for nomination to the National Register." In addition, this site is within the project area, but falls outside of the treatment area. It exists along Cramer Creek and would not be impacted as a result of this project.*
 - Allan Foss wrote a letter indicating DNRC blocked off his property in section 24 T12N R16W. He also stated that we want to "reduce my dead and poor trees". He also indicated that he has been generating revenue for the Common School Trust by paying taxes for forty years.
 - *DNRC is unaware of any person with legal access being locked out of the area indicated in the letter from Mr. Foss. DNRC is only removing trees on DNRC ownership, not Mr. Foss's.*
 - MT FWP indicated that it is unlikely that the upper reaches of the unnamed tributary within the parcel is fish-bearing, but Cramer Creek contains westslope cutthroat. FWP thanked DNRC for its consideration of aquatic resources by implementing a 100 foot SMZ and not constructing any new stream crossings.
 - *Stream and fisheries information and proposed mitigations can be found in the body of this document.*
 - Robert Nall sent a letter outlining concerns related to water quality, road maintenance, dust, aesthetics, protecting improvements and traffic (See attachment B-1)
 - *A response was sent to Mr. Nall on June 20, 2016 addressing his concerns about the proposal. (See attachment B-2)*

DNRC specialists were consulted, including: Patrick Rennie-Archaeologist; Garrett Schairer-Wildlife Biologist and Jeff Collins-Soils scientist/Hydrologist.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS

NEEDED: *(Conservation Easements, Army Corps of Engineers, road use permits, etc.)*

- **United States Fish & Wildlife Service-** DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands HCP and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP. The HCP can be found at www.dnrc.mt.gov/HCP.
- **Montana Department of Environmental Quality (DEQ)** - DNRC is classified as a major open burner by DEQ and is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.
- **Montana/Idaho Airshed Group-** The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

ALTERNATIVES CONSIDERED:

No-Action: No commercial harvest, road construction or road maintenance would occur at this time.

Action Alternative (Provide a brief description of all proposed activities):

- A commercial timber harvest would take place to remove approximately 685 thousand board feet (MBF) of timber. Timber would be harvested using cable yarding and ground based methods.
- Approximately 2 miles of new permanent road construction would take place. .4 miles of temporary road would also be constructed. The road prism would be left post-harvest however, earthen berms would be installed every 100-200 feet to allow for drainage and restrict access. Roads would be closed to motorized public use.
- Road maintenance would take place on existing roads in the project area associated with the timber harvest.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions:

This area falls within climatic section 332B, which was historically 79% forested. (Losensky, 1997). Climatic Section 332B includes valley bottoms as well as high elevations in the Bitterroot and Blackfoot region. The project area ranges in elevation from 5000'-6000'. These areas were historically dominated by pole size lodgepole pine, with mature Douglas-fir and western larch also well represented. Fire played a large role in shaping these stands.

DNRC has no record of previous harvest in the area. Occasionally old stumps can be found around what looks to have been mining activity in the early 1900s.

Throughout the project area and regardless of aspect, spruce budworm, root rot, mistletoe fungus, Douglas-fir beetle and mountain pine beetle can be found. Excluding spruce budworm, approximately 40% of overstory trees are currently impacted by an insect and/or disease. This holds true for all size classes within the project area.

There are two distinct stand types within the project area. The distinctions appear to be driven by aspect.

The first type exists on ridgetops and west facing slopes and are dominated by Douglas-fir (DF) 6-14" dbh. Trees are relatively short (average 60') with a high amount of taper. They predominately exist in homogenous clumps. Lodgepole pine (LPP) and ponderosa pine (PP) are also present. Much of the lodgepole has already succumbed to mountain pine beetle attacks. The remaining lodgepole exist in clumps with DBH ranging from 4"-8" dbh. Ponderosa pine are scattered throughout the stand. A wide range of DBH classes exists, ranging from clumps of "bull pine" 6-8" dbh all the way up to large trees 24-28" dbh existing in clumps of 1-3 or scattered individually throughout the stand. These larger trees often contain cat faces or fire scars. Regeneration occurs in thick clumps in any openings that have been created by insects and/or disease. All three species are represented in the understory, however each clump tends to be represented by a single species. Spruce budworm has caused mortality in the clumps of Douglas-fir regeneration. Ponderosa pine regeneration appears to be the most healthy, with limited beetle activity.

The second type exists in draw bottoms and east facing slopes. Similar to the first type Douglas-fir dominates the stand, however western larch is present throughout the stand as well. LPP and PP also exist, with PP only being present occasionally on convex ridges located on the east facing ridges. Douglas-fir size classes and distribution are consistent with those existing on ridgetops and west facing slopes. However, instead of large scattered PP, large scattered DF exist (16"-28" dbh). They too contain cat faces and fire scars. Western larch and LPP exist in intermixed clumps ranging in size from 6'-16" DBH. Many of which have been impacted by mountain pine beetle. Other than areas impacted by insects or disease, much of this stand is in a closed canopy situation with minimal regeneration occurring. However, when it does occur it is very similar to the first stand type regeneration composition, with the addition of western larch.

There are no stands classified as Old Growth in the project area.

Existing weeds (mainly knapweed, houndstongue and thistle) are common in the area, especially along roads and disturbed areas such as a past wildfire adjacent to the project area. Increased activity in the project areas, as well as a more open canopy, could lead to an increased risk of noxious weeds.

Vegetation Impacts Summary Table										
Vegetation	Impact								Can Impact Be Mitigated ?	Comment Number
	Direct & Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Noxious Weeds			X				X			
Rare Plants	X				X					
Vegetative community		X				X				
Old Growth	X				X					
Action										
Noxious Weeds			X				X		Y	1
Rare Plants	X				X				N/A	2
Vegetative community		X				X				3
Old Growth	X				X				N/A	3

Vegetation Comments:

1) DNRC would complete roadside spraying in the project area to reduce the spread of weeds along roads. However, noxious weeds would continue to occur and are likely to increase on state and adjacent lands, spread by wind, animals, and equipment operations, on areas of physical and fire disturbance. Project areas would be monitored for noxious weeds after implementation and herbicide would be applied along roads if necessary.

2) No rare plants have been identified within the project area through field surveys or a search within the Natural Heritage website.

3) The Action Alternative would utilize 52% ground based and 48% cable yarding harvest systems to remove trees impacted by insects and/or disease, suppressed trees of all size classes, as well as emulate natural disturbances (such as historically occurring wildfire). Trees previously killed by beetles that no longer contain beetles, beetle larvae or commercial value would be left as snags unless they have to be removed in order to safely harvest the area. Trees in both stand types identified in the vegetation existing conditions portion of this EA would have a reduction in stand density. When present, western larch and large diameter ponderosa pine were favored to maintain species and size class diversity within the stand. At a minimum, 2 snags and 2 snag recruits per acre were left. Trees were marked to leave using a sanitation/salvage prescription. This prescription would remove trees impacted by insects and/or disease and suppressed trees of all size classes resulting in a post- harvest stand appearance resembling natural disturbance, with scattered clumps as well as unevenly spaced overstory trees remaining throughout the project area.

The action alternative would have a low risk of direct, indirect and cumulative effects on the vegetative community for the following reasons:

- *Trees impacted by insects and/or disease would be salvaged.*
- *Stand density would be reduced, increasing vigor in the residual stand.*
- *No Old Growth exists within the project area.*
- *A mix of species and size classes more closely representing that which existed historically would be retained.*

Vegetation Mitigations:

- *Protect existing advanced regeneration during all aspects of timber harvest.*
- *Monitor project area for noxious weeds after implementation and apply herbicide along roads.*
- *Clean equipment to minimize the potential of introducing new weeds to the project area.*

GEOLOGY, SOIL DISTURBANCE AND PRODUCTIVITY:

Geology, Soil Disturbance and Productivity Existing Conditions:

Issue:

Soil Resources – There is a concern that the proposed forest management activities may adversely affect geologic or soil resources through excavation, excessive disturbance/displacement or compaction; depending on extent and degree of harvest related soil impacts.

A public comment was received requesting that the DNRC take measures to control dust on the Cramer Creek County road in front of a home.

The proposed harvest would occur on mountain slopes in the Garnet Range within the Cramer Creek drainage west of Bearmouth, Montana. Primary geologic parent materials are Missoula Group Precambrian age argillites and quartzites from coarse textured gravelly and cobbly residual soils on mountain sideslopes on the south and western 3/4 of the project section. Cambrian age limestone occurs in the northeast 1/3rd of the project section and along access roads to the north that forms calcareous Repp soils with high rock contents. Bedrock outcrops are common on ridgelines and at shallow depth on convex sites and slopes over 45%. Well fractured rock exposures and minor areas of talus occur on the steep slopes that exceed 65%. Seasonal minor rock spalling occurs associated with freeze thaw cycles on steep slopes and rocks may roll onto roads. No especially unique or unstable terrain was identified in the proposed harvest units or proposed roads during field review. Short segments of road construction are proposed where fractured bedrock is expected at shallow depth that would require ripping. Heavy ripping and possibly spot blasting may be required for short segments, more likely on sites with limestone outcrops. The parent materials are very durable to traffic and have moderate to low inherent erosion associated with the high coarse fragment contents of soils.

Primary forest soils are noted on Soil Map S-1 as described here and included with minor soils in table S-1 interpretations of attached soils report. Within the project section the primary forest

soils are complexes of Winkler soils that have shallow surface soils and are somewhat excessively drained with high water infiltration properties that exceed precipitation rates. Winkler soils have lower fine contents in subsoils and lower soil moisture retention. Competition for moisture from understory vegetation and high solar insolation can constrain conifer growth and regeneration, especially on southerly aspects. Conifers are subject to drought stress on these very well drained rocky soils and may have more common root rot incidence (Filip 1989). Primary soils on the north-easterly aspects are Winkler very gravelly loams cool phase that form along the steep stream canyon in the project parcel on slopes over 50% with some small included talus. The Winkler 133 map unit has slightly deeper surface duff layers and surface soil depth. Moisture retention is slightly greater and more productive growing sites than southerly aspects. Shallow fractured bedrock is common and road construction may require ¾ to full bench roads.

Repp soils have a shallow gravelly loam surface 3-5 inches in depth over shallow to moderately deep very gravelly loams and clay loams from limestone and calcareous subsoils may occur at 16-20" depth. These soils are moderately productive supporting mixed stands of ponderosa pine, and Douglas-fir on the more rocky convex slopes and ridges on southerly aspects which make regeneration slow to establish, unless partial shade is retained. Material quality is good for road construction, and erosion risk is moderate due to high rock contents in soils and rapid infiltration rates that exceed most precipitation events.

Slopes up to 45% are well suited to ground based operations. Primary concerns on all steep slopes over 45% is a moderate to high risk for displacement. Slopes over 45% can be feasibly harvested with cable or excaliner systems with minor effects based on DNRC monitoring (DNRC 2005).

Table S-2 Summary of Environmental Effects on Soil Resources by Alternative										
Soil Disturbance and Productivity	Impact								Can Impact Be Mitigated?	Comment Number
	Direct & Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Physical Disturbance (Compaction and Displacement)	X				X					
Erosion		X				X				
Nutrient Cycling	X				X					
Slope Stability		X				X				
Soil Productivity		X				X				
Action										
Physical Disturbance (Compaction and Displacement)		X	X			X			Y	1
Erosion		X				X			Y	1
Nutrient Cycling			X			X			Y	partial
Slope Stability		X				X				1
Soil Productivity			X			X			Y	2

Soil Comments:

1) *Best Management Practices (BMP's) would be implemented on all roads and within the units. To minimize soil impacts of displacement and erosion, ground based operations would be limited to moderate slopes less than 45% and dry, frozen or snow covered conditions. Slopes over 45% would be cable harvested.*

2) *Promoting codominant trees that are well spaced to reduce moisture competition and improve growth would moderate the high solar insolation risk. Southerly aspects are droughty and retaining a mixed stand that provides moderate shade can moderate temperature/moisture stress. Interplanting and vegetation treatments could improve regeneration success and tree stocking on understocked areas. If hexazinone is applied to control grass competition, the impacts are minimal and would be beneficial when applied according to label directions.*

Soil Mitigations:

- *Harvesting and hauling operations would be limited to dry or winter operations of frozen, or snow covered ground. If winter conditions deteriorate, harvest would only take place when soils are adequately dry.*
- *5 tons/ acre of unmerchantable pieces of trees and defect wood and a portion of fine litter would be left in the woods to provide coarse woody debris (CWD) for soil moisture/productivity, to moderate solar effect, provide conifer microsites, and for nutrient recycling.*

WATER QUALITY AND QUANTITY:

Issues: *Water Quality - There is a concern that the proposed action may cause impacts to water quality and quantity from timber management, road construction, and road use.*

A public comment was received expressing concern that sediment may impact a tributary stream that is a surface domestic water supply source, below the project area.

There is also a concern that the proposed timber harvest may cause or contribute to cumulative watershed impacts as a result of potential increased runoff and sedimentation.

Water Quality and Quantity Existing Conditions:

Low-Moderate Existing Effects- Past management activities in the Cramer Creek drainage include timber harvest, road construction, fire suppression, mining, rural homes and subdivisions, grazing, and recreation. These activities have had moderate impacts on water quality in the Cramer Creek drainage. Streams in the project area were reviewed for channel stability and sediment sources. The project parcel is located in an unnamed perennial tributary to Cramer Creek. The tributary stream is not a 303d listed impaired stream and all beneficial uses are currently supported, including fish and aquatic life. Yet there are low levels of cumulative effects to water quality within the unnamed tributary project drainage that includes past timber harvest and old mining exploration in the headwaters.

The timber stands are dominated by mixed conifer forests that were largely initiated by fires. Timber harvests within the Cramer Creek drainage started in the early 1900's with rural development, mine exploration and commercial timber removal. These activities resulted in extensive road construction in the drainage including some poor road locations adjacent to streams, such as the main Cramer Creek road. Mechanized operations occurred mainly from

1930-2010, with the older operations having greater impacts prior to BMP adoption in 1988. There has been past timber harvest on private lands that has largely regenerated to young and intermediate conifer forests. There was historic riparian harvest along Cramer Creek and at the mouth of the unnamed tributary below the project parcel where land was cleared for home construction that is within 30 feet of the stream.

There are 5 miles of existing access roads to the project section that are generally in good condition, yet require maintenance grading on road segments with steeper grades to meet BMP's for adequate road surface drainage. There are two intermittent stream crossings on the gated access road that conform to BMP's. Surface erosion can be controlled with standard road surface drainage, implementation of BMP's and reseeding disturbed roadsides and landings. Portions of the existing roads are subject to rutting if operated on when wet. Two perennial culverts occur on the Cramer Creek County road in section 25, T12N, R16W that are shorter than appropriate and are a minor source of sediment and impacts to water quality.

Water Yield Tree canopy reduction by timber harvest activities, tree mortality or wildfire can affect the timing of runoff, increase peak flows and increase the total annual water yield of a particular drainage, principally in areas with an average of 30 inches or more of annual precipitation. Moderate to high increases in water yield can increase stream channel scour and in-stream sediments that impact water quality and fish habitat, so we evaluated stream channel conditions as part of the project analysis focusing on the unnamed tributary drainage. Water yield can also decline based on forest canopy regrowth that increases precipitation interception and transpiration, which reduces runoff.

Snowmelt in the project areas typically begins early in April with peak runoff in May. Snowmelt occurs first and is flashy on the more southerly aspects. As noted in the soil analysis, soil infiltration rates generally exceed 6 inches/ hour and even in rapid snowmelt, surface runoff generally carries only a short distance before infiltrating into the soil. This moderate potential for runoff is reinforced by moderate precipitation in the area (21" average annual precipitation) and estimates of Relative Effective Annual Precipitation (REAP) developed by the Montana Natural Resources Conservation Service (NRCS web reference 2016). REAP is an indicator of the amount of moisture available at a location taking into account precipitation, slope, aspect and soil properties and is displayed as a map layer (see project file for complete analysis). The REAP data and climate summary for the project area indicates that effective precipitation is at a deficit in the summer when transpiration exceeds precipitation. Areas of overstocked trees increase competition for limited soil moisture later in the summer.

Historically, tree cover comprised about 65-80% of forest stands in combination with natural openings, talus area and areas in various successional stages after fires, as noted in the vegetation section description. Currently, older lodgepole pine and a portion of ponderosa pine are dead, dying and at risk of mountain pine beetle mortality. Spotty root rot occurrences have also reduced crown canopy of Douglas-fir and caused mortality in proposed state lands harvest areas. Insect mortality and root-rot may have resulted in a minor increase in water yield which is not measurable and partially offset as water yield is also declining in forest stands that have regenerated from previous harvests.

As mentioned in the vegetation analysis, this area has not previously had a large scale timber harvest. A few old stumps can be observed, likely from early historic mine exploration and there may have been a small placer exploration in the lower stream channel upstream of the state parcel boundary. Perennial flow from groundwater begins just above and north of the section 26 property line, and appears to be slightly above average temperatures as it supports watercress

and has open flow in the winter. Segments of the stream are slightly incised in a narrow bedrock controlled V draw bottom that appears typical of a resilient Rosgen B-3 channel type. The current stream stability conditions are excellent based on field review. The lower drainage has a slightly broader wetland that appears to be old beaver ponds and alluvial deposits with dense riparian vegetation that traps upstream sediments. Two 1st order ephemeral draws occur in the northeast corner of the section. There is no field evidence of increased water yield affecting stream channel stability or water quality on private land directly upstream of the project or on the perennial stream within the state project section. The summary of effects are displayed in Table WS-1 and further described in the Soil, Water, Fisheries and Weeds Report (see project file for complete analysis).

Table WS-1 Summary Effects of the Alternatives on Water Quality and Quantity									
Water Quality & Quantity	Impact								Can Impact Be Mitigated?
	Direct & Indirect				Cumulative				
	No	Low	Mod	High	No	Low	Mod	High	
No-Action									
Water Quality Sediment Delivery		X	X			X	X		NA
Water Quantity		X				X			NA
Action									
Water Quality Sediment Delivery		X	X			X	X		Partially
Water Quantity		X				X			Y

Water Resources Comments:

1) The proposed harvest would use existing roads to access the section. Road drainage would be improved to meet BMP's and the potential is low for increased sediment associated with the proposed logging and hauling operations. The only identified direct sources of sediment on the project haul route are the existing culverts on the Cramer Creek County road in section 25 T12N, R16W. As the Cramer Creek Road is a county road, Missoula County is responsible for the maintenance of these pipes. If infrastructure funds become available, as part of a Cooperative effort with Missoula County and other road users, DNRC would assist in replacement of a damaged culvert on the Cramer Creek road that is near the access road gate in SESW Section 25, T12N, R16W.

The riparian management zones proposed for harvest have well established vegetative buffers and there is low risk of sedimentation to surface waters from the proposed harvest operations based on the proposed cable harvest, implementation of BMP's and RMZ's to protect water quality (DNRC 2012). Sediment trapping research (Lakel et. al. 2010) on the effectiveness of stream buffers, found that > 97% of erosion was trapped by vegetation prior to entering streams for SMZ's of 25ft or more.

2) Channel stability is excellent along the perennial unnamed tributary that flows through the project parcel. The removal of dead and overstocked trees has a low potential to increase runoff from decreased interception and transpiration; due to low precipitation and retaining well stocked and spaced conifers to maximize growth. Based on the limited area of moderate

harvest, it is unlikely there would be measurable changes to water yield or effects to channel stability.

Water Resources Mitigations:

- *DNRC would locate, clearly mark and maintain suitable water resource protection boundaries including Streamside Management Zones (SMZ's), and Wetland Management Zones (WMZ's) adjacent to streams and wetlands consistent with State Forest Land Management Rules where appropriate. No operations are planned within or directly adjacent to the perennial stream in the project parcel.*
- *Riparian Management Zones (RMZ) would be designated for stream protection where proposed harvest units are adjacent to class 1 stream segments. The RMZ distance is based on a stand potential tree height of 85 feet adjacent to Class 1 streams and on most of the harvest locations the SMZ width is marked at 100 feet based on slopes over 35%. No harvest would occur within the 50 feet of the Class 1 segments of the project parcel considered supporting fish and all RMZ harvest is planned for low disturbance cable harvest.*
- *Minor individual tree section harvest is planned on less than 3 acres of combined area within the outer edge of the RMZ/SMZ and is approximately 65 feet or more from the Class 1 stream segments. The selection harvest is marked to retain more than 50% of representative trees greater than or equal to 8"dbh in the 50 foot to 85 foot band of the RMZ, and retain sub merchantable trees to the fullest extent possible in the RMZ.*
- *Existing and new roads would be maintained concurrently in association with the harvest and road use activities. Road improvements would include surface blading, rock armor culvert inlets, and installation of road drainage features where needed to prevent surface erosion and sediment delivery to streams as needed to comply with BMP'S, and to protect water quality.*
- *If infrastructure funds become available, as part of a cooperative effort with Missoula County, a damaged culvert under the Cramer Creek road would be replaced. The operation would be completed in accordance with FWP 124 water quality permit requirements. If the culvert is replaced there would likely be a short term spike in sediment during construction that would quickly subside and result in a long term benefit to water quality.*

FISHERIES:

Issue- There is a concern that the proposed forest management actions may have effects to fisheries due to sediment delivery to streams.

Fisheries Existing Conditions:

Fish presence or absence within the analysis areas are based on MTFWP-MFISH 2016 data and field reviews of the potentially affected streams and access road stream crossing sites on the proposed haul routes. Bull trout have not been identified in Cramer Creek (11 miles long). Westslope cutthroat trout, slimy sculpin and Brook trout have been identified in Cramer Creek and likely inhabit the lower to mid reaches of the unnamed tributary stream that flows through the project parcel. Westslope cutthroat trout is a sensitive species. Fingerlings that appear to be brook trout have been observed in the unnamed tributary to Cramer Creek above the county

road crossing in section 25 but have not been sampled. There is a bedrock bluff and very steep stream gradient of over 20% about ½ mile above the road crossing in the project section that may limit fish to the upper reaches and perennial flow begins just upstream of the project parcel boundary.

Sediment There are moderate existing direct and indirect impacts of sediments to water quality in the project area as noted in the water quality section, principally on the County Road adjacent to Cramer Creek. There are no stream crossings in the unnamed tributary stream above the Cramer Creek county road crossing, and no direct sources of sediment delivery from roads or harvest that may affect fisheries habitat in the state project parcel.

Fisheries Resources Comments:

The proposed project has overall low additive direct or indirect cumulative impacts to fisheries based on the following: minor harvest of less than 3 acres with cable operations for selected trees over 65 feet from Class 1 fishery streams, moderate harvest with cable harvest away from streams, road construction on dry sites with no new stream crossings of fish bearing stream locations, sediments from road repair would be short duration and quickly subside to lower levels than no-action. The low level potential for change in water yield is unlikely to cause a perceptible change to the stream channel stability or cause adverse impacts to channel forms or fish habitat in or directly below the project parcel.

1) Road drainage on existing roads used to access the section would be improved to meet BMP's. The potential is low for increased sediment associated with the proposed logging and hauling operations. The existing culverts on the Cramer Creek County road in section 25 T12N, R16W are the only identified direct sources of sediment on the project haul route due to short pipes and Missoula County is responsible for road maintenance. If infrastructure funds become available, as part of a cooperative effort with Missoula County and other road users, DNRC would assist in replacement of a damaged culvert on the Cramer Creek road that is near the access road gate in SESW Section 25, T12N, R16W.

The summary of effects are displayed in Table FS-1 and further described in attached Soil, Water, Fisheries and Weeds Report (see project file).

Fisheries Resources Mitigations:

- DNRC would locate, clearly mark and maintain suitable water resource protection boundaries including Streamside Management Zones (SMZ's), and Wetland Management Zones (WMZ's) adjacent to streams and wetlands consistent with State Forest Land Management Rules where appropriate. Riparian Management Zones (RMZ) would be designated at 85 feet for stream protection where proposed harvest units are adjacent to class 1 stream segments. No harvest would occur within the 50 feet of the Class 1 segments. The selection harvest would be marked to retain more than 50% of representative trees greater than or equal to 8"dbh in the 50 foot to 85 foot band of the RMZ, and retain sub merchantable trees to the fullest extent possible in the RMZ.*
- Existing and new roads would be maintained concurrently in association with the harvest and road use activities. Road improvements would include surface blading, rock armor culvert inlets, and installation of road drainage features where needed to prevent surface erosion and sediment delivery to streams as needed to comply with BMP'S, and to protect water quality.*

- *If infrastructure funds become available, as part of a cooperative effort with Missoula County to replace a damaged culvert, the operation would be completed in accordance with FWP 124 water quality permit requirements. If the culvert is replaced there would likely be a short term spike in sediment during construction that would quickly subside and result in a long term benefit to water quality.*

Table FS-1 Summary Effects of the Alternatives on Fishery Resources									
Fishery Resources	Impact								Can Impact Be Mitigated?
	Direct & Indirect				Cumulative				
	No	Low	Mod	High	No	Low	Mod	High	
No-Action									
Water Quality-Quantity Sediments			X				X		NA
Large Woody debris & Stream Shading	X				X				NA
Fish Habitat Connectivity	X				X				NA
Action									
Water Quality- Quantity Sediment Delivery		X	X				X		Y
Large Woody debris & Stream Shading	X				X				NA
Fish Habitat Connectivity	X				X				NA

WILDLIFE:

Evaluation of the impacts of the No-Action and Action Alternatives including **direct, indirect, and cumulative** effects on Wildlife.

Wildlife Existing Conditions: The project area is a mix of forested Douglas-fir, ponderosa pine, and lodgepole pine stands. Grizzly bears could occasionally use the vicinity of the project area. Approximately 13 acres of suitable Canada lynx habitats exist in the project area. Potential habitat exists for flammulated owls (386 acres) and pileated woodpeckers (224 acres) in the project area. A couple of gray wolf packs are in the vicinity, but use of the project area has not been documented. Townsend's big-eared bats have been documented in Cramer Creek and West Fork of Cramer Creek in the vicinity of the project area. A northern goshawk was documented in the project area in the early nesting season and a nest was located; however continued monitoring did not document use of the nest later in the nesting season. The project area could be suitable nesting or foraging habitats for northern goshawks. Big game winter range and security habitat exists in the project area.

No-Action: No potential for disturbance to wildlife would be anticipated. No timber management activities would be conducted, thus no appreciable changes to existing habitats would occur. Continued maturation could improve Canada lynx, pileated woodpecker habitats, and big game winter range attributes, but could reduce habitat quality for flammulated owls over the long term. Generally, negligible direct, indirect, or cumulative effects would occur.

Action Alternative (see Wildlife table below):

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species										
Grizzly bear (Ursus arctos) Habitat: Recovery areas, security from human activity		X				X			Y	W-1
Canada lynx (Felix lynx) Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone		X				X			Y	W-2
Yellow-Billed Cuckoo (Coccyzus americanus) Habitat: Deciduous forest stands of 25 acres or more with dense understories and in Montana these areas are generally found in large river bottoms	X				X					
Sensitive Species										
Bald eagle (Haliaeetus leucocephalus) Habitat: Late-successional forest less than 1 mile from open water	X				X					
Black-backed woodpecker (Picoides arcticus) Habitat: Mature to old burned or beetle-infested forest	X				X					
Coeur d'Alene salamander (Plethodon idahoensis) Habitat: Waterfall spray zones, talus near cascading	X				X					

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
streams										
Columbian sharp-tailed grouse <i>(Tympanuchus Phasianellus columbianus)</i> Habitat: Grassland, shrubland, riparian, agriculture	X				X					
Common loon <i>(Gavia immer)</i> Habitat: Cold mountain lakes, nest in emergent vegetation	X				X					
Fisher <i>(Martes pennanti)</i> Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian	X				X					
Flammulated owl <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine and Douglas-fir forest		X				X			Y	W-3
Gray Wolf <i>(Canis lupus)</i> Habitat: Ample big game populations, security from human activities		X				X			Y	W-4
Harlequin duck <i>(Histrionicus histrionicus)</i> Habitat: White-water streams, boulder and cobble substrates	X				X					
Mountain plover <i>(Charadrius montanus)</i> Habitat: short-grass prairie & prairie dog towns	X				X					

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Northern bog lemming <i>(Synaptomys borealis)</i> Habitat: Sphagnum meadows, bogs, fens with thick moss mats	X				X					
Peregrine falcon <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	X				X					
Pileated woodpecker <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest		X				X			Y	W-5
Townsend's big-eared bat <i>(Plecotus townsendii)</i> Habitat: Caves, caverns, old mines	X				X					W-6
Wolverine <i>(Gulo gulo)</i> Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	X				X					
Other Species Considered										
Northern Goshawk <i>(Accipiter gentilis)</i> Habitat: Coniferous forests with high canopy closure and relatively open understory			X				X		Y	W-7

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Big Game Species										
Elk		X				X			Y	W-8
Whitetail Deer		X				X			Y	W-8
Mule Deer		X				X			Y	W-8
Moose		X				X			Y	W-8
Other	X				X					

Comments:

W-1 The project area is 18 miles south of the Northern Continental Divide Ecosystem grizzly bear recovery area and is 12 miles south of 'occupied' grizzly bear habitat as mapped by grizzly bear researchers and managers to address increased sightings and encounters of grizzly bears in habitats outside of recovery zones (Wittinger et al. 2002). Individual animals could occasionally use the project area while dispersing or possibly foraging, and they could be displaced by project-related disturbance if they are in the area during proposed activities. However, given their large home range sizes, and manner in which they use a broad range of forested and non-forested habitats, the proposed activities and alterations of forest vegetation on the project area would have negligible influence on grizzly bears.

W-2 There are roughly 13 acres of suitable Canada lynx habitats in the project area and given the location of these habitats and surrounding landscape, extensive use of the project area by Canada lynx would not be expected. Proposed harvesting would alter all 13 acres of lynx habitats and would likely transition these stands to temporary non-suitable habitats. Coarse woody debris would be retained (emphasizing retention of some logs 15 inches dbh and larger) to provide some horizontal cover and security structure for lynx. In the short-term, lynx use of the project area could decline due to the resulting openness of the stands. Proposed activities would further reduce forested connectivity in an area where connectivity has previously been compromised; some connectivity would be retained along riparian areas and through unharvested patches between harvested units.

W-3 There are approximately 386 acres of potential flammulated owl habitats in dry Douglas-fir stands across the project area. Portions of the cumulative effects analysis area have been harvested in the recent past, potentially improving flammulated owl habitat by creating foraging areas and reversing a portion of the Douglas-fir encroachment and opening up stands of ponderosa pine; however retention of large ponderosa pine and/or Douglas-fir was not necessarily a consideration in some of these harvest units, thereby minimizing the benefits to flammulated owls. Flammulated owls can be tolerant of human disturbance (McCallum 1994), however the elevated disturbance levels associated with proposed activities could negatively affect flammulated owls should activities occur when flammulated owls are present. Proposed activities could overlap the nestling and fledgling period. Since some snags would be retained, loss of nest trees would be expected to be minimal. Proposed activities on 183 acres of potential flammulated owl habitats would open the canopy while favoring ponderosa pine and Douglas-fir. The more open stand conditions, the retention of fire adapted tree species, and the maintenance of snags would move the project area toward historical conditions, which is preferred flammulated owl habitat.

W-4 Although the project area has not been included in the annual home ranges of any known wolf packs, a couple of wolf packs are in the vicinity, including the Chamberlain and Union Peak wolf packs. No known den or rendezvous sites occur in the project area, but some use of the project area by wolves could occur for breeding, hunting, or other life requirements. Big game species exist in the vicinity of the project area much of the year and winter range exists in the project area. Wolves using the area could be disturbed by proposed activities and are most sensitive at den and rendezvous sites, which are not known to occur in the project area or within 1 mile of the project area. Disturbance at potential den sites and rendezvous sites could exist if these features are in the vicinity and operations were conducted during the spring period; however soil moisture stipulations in the contract could limit potential disturbance during part of the time periods when wolves may be using denning and/or rendezvous sites. Should either a den or rendezvous site be identified within 1 mile of the project area, a DNRC biologist would be consulted to determine if additional mitigations would be necessary. In the short-term, the proposed activities could lead to slight shifts in big game use, which could lead to a shift in wolf use of the area. Proposed activities would alter canopy closure, summer big game habitat, and big game winter range habitat, which could alter some big game use of the area, but would not be expected to appreciably alter wolf prey abundance.

W-5 Roughly 224 acres of pileated woodpecker nesting habitat exist in the project area; another 162 acres of potential foraging habitats exist in the project area. Disturbance to pileated woodpeckers could occur if proposed activities occur during the nesting period. Harvesting would reduce forested habitats for pileated woodpeckers in the project area. Roughly 116 acres of potential nesting habitats and 67 acres of potential foraging habitats would be opened up with proposed treatments. Some potential continued use as foraging habitats would be possible depending on density of trees retained. Elements of the forest structure important for nesting pileated woodpeckers, including snags, coarse woody debris, numerous leave trees, and snag recruits would be retained in the proposed harvest areas. Since pileated woodpecker density is positively correlated with the amount of dead and/or dying wood in a stand (McClelland 1979), pileated woodpecker densities in the project area would be expected to be reduced on 194 acres.

W-6 Townsend's big-eared bats have been documented in Cramer Creek and West Fork of Cramer Creek in the vicinity of the project area. However, no suitable caves or mine tunnels are known to occur in the project area or vicinity. Thus, no direct, indirect or cumulative effects to Townsend's big-eared bats would be anticipated as a result of either alternative.

W-7 A northern goshawk was documented in the project area in the early nesting season and a nest was located; however continued monitoring did not document use of the nest later in the nesting season. The nest located is likely an alternate nest that was not used by the pair in 2016. Re-use of old nests by goshawks occurs relatively infrequently, but fidelity to the nest area is fairly high (Woodbridge and Deitrich 1994, Patla 1997), thus the territory could be used again and this site or another in the vicinity could again be occupied by goshawks. Proposed activities within ¼ mile of a known goshawk nest would not occur between April 1 and August 1 unless the nest is documented to be unoccupied. This would limit potential disturbance to nesting goshawks in the vicinity. The stand containing the nest is a mix of Douglas-fir and lodgepole pine; retention would be slightly heavier in this area compared to prescriptions elsewhere in the proposed units. The prescriptions in this area would retain additional Douglas-fir, but would continue to remove most of the lodgepole pine since much of it is already experiencing higher mortality. The resultant stands would be more open, contain fewer large trees, fewer snags, more coarse woody debris, fewer areas of dense mid-aged forest, but would perpetuate some small openings for additional prey species; overall a reduction in prey

availability would be anticipated, but use by goshawks for foraging could persist. An increase in potential nest predation would be possible with the increasingly openness in the canopy. A decrease in future occupancy of the nest site by goshawks would be likely following proposed treatments (Patla 2005).

W-8 Montana Department of Fish, Wildlife, and Parks identified mule deer (215 acres) and elk (95 acres) winter range in the project area. These winter ranges are part of larger winter ranges in the area. Douglas-fir stands in the project area are providing attributes facilitating some use by wintering big game. Proposed activities could occur in the winter or non-winter. Disturbance during the winter created by mechanized logging equipment and trucks could temporarily displace big game animals during periods of operation for 2 to 4 years; however, winter logging provides felled tree tops, limbs, and slash piles that could concentrate feeding big game. No disturbance to wintering big game would occur with any activities occurring during the non-winter period. No long-term effect to winter range carrying capacity or factors that would create long-term displacement or reduced numbers of big game would be anticipated. Proposed activities would reduce canopy closure on roughly 194 acres of deer and elk winter range. Following proposed activities, the capacity of these stands to intercept snow and provide thermal cover for big game would be reduced and/or removed depending on density of trees retained, reducing habitat quality for wintering big game. Proposed activities would not prevent big game movement through the project area appreciably in winter and could stimulate browse production in the units. Potential big game security habitat exists in the project area, but no changes in open roads would occur, thus minor alterations to big game security habitat would be anticipated.

Wildlife Mitigations:

- A DNRC biologist would be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Motorized public access would be restricted at all times on restricted roads that are opened for harvesting activities; signs would be used during active periods and a physical closure (gate, barriers, equipment, etc.) would be used during inactive periods (nights, weekends, etc.). These roads and skid trails would be reclosed to reduce the potential for unauthorized motor vehicle use.
- Snags, snag recruits, and coarse woody debris would be managed according to ARM 36.11.411 through 36.11.414, particularly favoring western larch and ponderosa pine. Clumps of existing snags could be maintained where they exist to offset areas without sufficient snags. Coarse woody debris retention would emphasize retention of downed logs of 15-inch diameter or larger.
- Contractors and purchasers conducting contract operations would be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants would be stored in a bear-resistant manner.
- Minimize potential disturbance to nesting northern goshawks by not permitting harvesting activities within $\frac{1}{4}$ mile of an active, known nest from April 1-August 1. Retain the majority of the Douglas-fir within 525 feet of the known nest site to maintain some of the attributes that are likely making it suitable for nesting goshawks.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	X				X				X					
Dust			X				X			X				
Action														
Smoke		X				X				X			Yes	1
Dust			X				X			X			Yes	2

Air Quality Comments:

1) Under the Action Alternative, slash piles consisting of tree limbs and tops and other vegetative debris would be created throughout the project area during harvesting. These slash piles would ultimately be burned after harvesting operations have been completed.

2) Traffic associated with the timber sale has the potential to cause an increase in dust on the main Cramer Creek County Road.

Air Quality Mitigations:

- Burning within the project area would be short in duration and would be conducted when conditions favored good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group.
- The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.
- Under the Action Alternative, dust abatement would be applied to a segment of the main Cramer road that passes a home in section 25. Dust abatement would reduce road traffic dust to improved conditions compared to no action where current county road use increases dust.

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	X				X								N/A	1
Aesthetics			X				X						Y	2
Demands on Environmental Resources of Land, Water, or Energy	X				X									
Action														
Historical or Archaeological Sites	X				X									

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Aesthetics			X				X						Y	3
Demands on Environmental Resources of Land, Water, or Energy	X				X									

Archaeological Site Comments:

1) As mentioned in the Scoping section, the DNRC Archaeologist was consulted about site 24moo167 (identified by the CSKT during scoping). The inventory record indicates “the site lacks the apparent artifact density and preservation integrity for nomination to the National Register.” In addition, this site is within the project area, but falls outside of the treatment area. It exists along Cramer creek and would not be impacted as a result of this project.

A Class I (literature review) level review was conducted by the DNRC staff Archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards. The Class I search revealed that no cultural or paleontological resources have been identified in the APE. Because of the overall steep terrain (from an archaeological perspective), a lack of springs, and the lack of geology that would suggest caves, rock shelters, or sources of tool stone, no additional archaeological investigative work will be conducted in response to this proposed development. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work would cease until a professional assessment of such resources can be made.

Aesthetics Comments:

2) Under the No Action Alternative, the stand would continue to suffer mortality from insects and disease. This mortality would cause openings to develop throughout the project area as well as a “jackstraw” stand condition as trees fall over. This would occur across all size classes, including large diameter ponderosa pine and Douglas-fir. As insects move through the stand, red needled trees would be observed throughout the stands. Eventually stands would have a gray appearance. Under the No-Action alternative this condition would persist.

3) Approximately 66% of the overstory trees would be removed under the Action-Alternative utilizing 52% ground based and 48% cable yarding harvest systems to remove insect infested, disease infected or suppressed trees across all size classes, as well as emulate natural disturbances (such as historically occurring wildfire). Trees previously killed by beetles that no longer contain beetles, beetle larvae or commercial value would be left unless they have to be removed in order to safely harvest the area. This prescription would result in a post-harvest stand appearance resembling natural disturbance, with scattered clumps as well as unevenly spaced overstory trees remaining throughout the project area. In areas being treated by cable yarding systems, yarding corridors would be kept narrow to limit visual impacts. Slash piles consisting of tree limbs, tops and other vegetative debris would be created throughout the project area during harvesting. These slash piles would ultimately be burned after harvesting operations have been completed.

Due to topography, very little of the proposed harvest would be able to be observed from an open road. The area surrounding the proposed project has received several entries under

previous ownership. The proposed harvest would soften the edges and blend the landscape together.

Aesthetics Mitigations:

- In areas being treated by cable yarding systems, yarding corridors would be kept narrow to limit visual impacts.
- The proposed prescription would emulate natural processes and post harvest stands would have a natural appearance.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

- None

Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					

Locally Adopted Environmental Plans and Goals: List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

- None

Other Appropriate Social and Economic Circumstances:

Costs, revenues and estimates of return are solely intended for relative comparison of alternatives. They are not to be used as absolute estimates of return. The estimated stumpage is based on comparable sales analysis. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay.

No Action: The No Action alternative would not generate any return to the trust at this time.

Action: The proposed timber harvest would generate additional revenue for the Common School Trust. The estimated return to the trust would be \$24,205 based on an estimated harvest of 685 thousand board feet and an average stumpage value of \$5.00 per ton. DNRC does not track project-level costs for individual timber sales. An annual cash flow analysis is conducted on the DNRC forest product sales program. Revenue and costs are calculated by

land office and statewide. These revenue-to-cost ratios are a measure of economic efficiency. A recent revenue-to-cost ratio of the Southwestern Land Office was 1:2.07. This means that, on average, for every \$1.00 spent in costs, \$2.07 in revenue was generated. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return.

References

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- DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.
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- McClelland, B.R. 1979. The pileated woodpecker in forests of the Northern Rocky Mountains. Pages 283-299 *in* Role of insectivorous birds in forest ecosystems. Academic Press.
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- Wittinger, W.T. 2002. Grizzly bear distribution outside of recovery zones. Unpublished memorandum on file at USDA Forest Service, Region 1. Missoula, Montana. 2pp.
- Woodbridge, B., and P. J. Detrich. 1994. Territory occupancy and habitat patch size of Northern Goshawks in the southern Cascades of California. *Studies in Avian Biol.* 16: 83-87.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?

NO

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

NO

Environmental Assessment Checklist Prepared By:

Name: Amy Helena

Title: Forest Management Supervisor

Date: March 8, 2017

Finding

Alternative Selected

Alternative B-The Action Alternative

Significance of Potential Impacts

An interdisciplinary team (ID Team) has completed the Environmental Assessment (EA) for the proposed Sliver Me Timber Timber Sale prepared by the Montana Department of Natural Resources and Conservation (DNRC). After a review of the EA, project file, public correspondence, Department Administrative Rules, policies, and the State Forest Land Management Plan (SFLMP), I have made the following decisions:

ALTERNATIVE SELECTED

Two alternatives were presented and the effects of each alternative were fully analyzed in the EA:

Alternative A: Deferred Harvest (No Action Alternative)

Alternative B: Harvest (Action Alternative)

Alternative B proposes to harvest approximately 685,000 board feet of timber on 194 acres. Alternative A does not include the harvest of any timber. Subsequent review determined that the alternatives, as presented, constituted a reasonable range of potential activities.

For the following reasons, I have selected the Action Alternative without additional modifications:

The Action Alternative meets the Project Need and the specific project objectives as described on page 2 of the EA. The Action Alternative would produce an estimated net return of \$24,205 to the Common School (CS) Trust, while providing a mechanism whereby the existing timber stands would be moved towards conditions more like those, which existed historically.

The analysis of identified issues did not disclose any reason compelling the DNRC to not implement the timber sale.

The Action Alternative includes mitigation activities to address environmental concerns identified during both the Public Scoping phase and the project analysis.

SIGNIFICANCE OF IMPACTS

For the following reasons, I find that the implementation of Alternative B will not have significant impacts on the human environment:

Soils-Leaving 5-15 tons of large, woody debris on site will provide for long-term soil productivity. Harvest mitigation measures such as skid trail planning and season of use limitations will limit the potential for severe soil impacts.

Water Quality-The Action Alternative would improve the surface drainage on existing roads, clean ditches and culverts outlets thereby reducing the amount of current sedimentation within the project area. Water Quality Best Management Practices for Montana Forests (BMPs) and the Streamside Management Zone (SMZ) law will be strictly adhered to during all operations involved with the implementation of the Action Alternative.

Cumulative Watershed Effects-Estimated increases in annual water yield for the proposed action have been determined to be negligible by the DNRC Hydrologist. Increases in sediment yield are expected to be negligible due to the amount of area treated, location along the landscape, and mitigations designed to minimize erosion.

Cold Water Fisheries- The Action Alternative includes a minor harvest of less than 3 acres with cable operations for selected trees over 65 feet from Class 1 fishery streams, moderate harvest with cable harvest away from streams, road construction on dry sites with no new stream crossings of fish bearing stream locations, sediments from road repair would be short duration and quickly subside to lower levels than no-action. The selection harvest within the SMZ of the Class 1 stream would be marked to retain more than 50% of representative trees greater than or equal to 8"dbh in the 50 foot to 85 foot band of the RMZ, and retain sub merchantable trees to the fullest extent possible in the RMZ.

Air Quality-Any slash burning conducted as part of the Sliver Me Timber Timber Sale will be conducted in coordination with the Montana/Idaho Airshed group in order to ensure that ideal smoke dispersion conditions exist prior to ignition and throughout the duration of any burning operations. As a result, impacts to air quality should be minor and short in duration.

Noxious Weeds-Equipment will be cleaned prior to entering the project area, which will reduce the likelihood of weed seeds being introduced onto treated areas. The DNRC will monitor the project area for two years after harvest and will use an Integrated Weed Management strategy to control weed infestations should they occur.

Forest Conditions and Forest Health-The proposed harvest will begin the process of returning the timber stands within the project area to those conditions that most likely existed on the site(s) prior to organized fire suppression.

Visual Quality-The limited amount of new permanent roads, a harvest prescription that leaves the largest, healthiest trees within treated stands, and minimizing the width of cable corridors when yarding steeper slopes will result in a minimal visual impact in the short term. The aesthetic quality of the project area should improve in the long term as trees remaining within treated stands increase in size and their crowns expand.

Wildlife-The proposed harvest operations present a minimal likelihood of negative impacts to Threatened and Endangered Species. Those potential impacts that do exist have been mitigated to levels within acceptable thresholds. The same is true for those species that have been identified as "sensitive" by the DNRC. The effects of the proposed action on Big Game species would be low to moderate.

Economics-The Action Alternative would provide approximately \$24,205 in net short-term revenue to the Common School Trust and does not limit the DNRC's options for generating revenue from these sites in the future.

3. PRECEDENT SETTING AND CUMULATIVE IMPACTS-

The project area is located on State-owned lands, which are "principally valuable for the timber that is on them or for growing timber or for watershed" (MCA 77-1-401). The proposed action is similar to past projects that have occurred in the area. Since the EA does not identify future actions that are new or unusual, the proposed timber harvest is not setting precedence for a future action with significant impacts.

Taken individually and cumulatively, the identified impacts of the proposed timber sale are within established threshold limits. Proposed timber sale activities are common practices and none of the project activities are being conducted on fragile or unique sites.

The proposed timber sale conforms to the management philosophy adopted by DNRC in the SFLMP and is in compliance with existing laws, Administrative Rules, and standards applicable to this type of action.

4. SHOULD DNRC PREPARE AN ENVIRONMENTAL IMPACT STATEMENT (EIS)?

Based on the following, I find that an EIS does not need to be prepared:

The EA adequately addressed the issues identified during project development, and displayed the information needed to make the pertinent decisions.

Evaluation of the potential impacts of the proposed timber sale indicates that significant impacts to the human environment will not occur as a result of the implementation of the Action Alternative.

The ID Team provided sufficient opportunities for public review and comment during project development and analysis.

Need for Further Environmental Analysis

☐

EIS

☐

More Detailed EA

☒

No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Jonathan Hansen

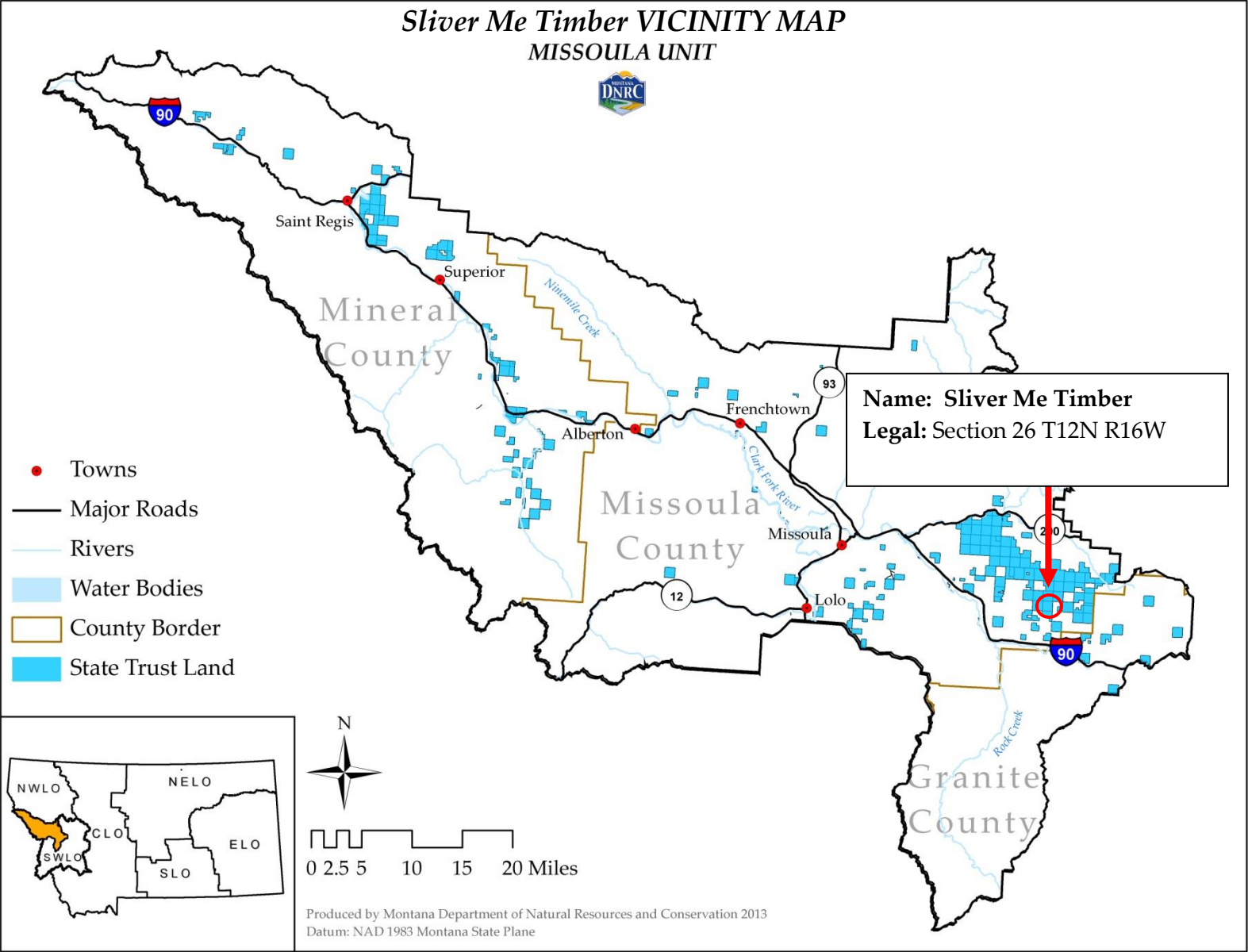
Title: Missoula Unit Manager

Date: March 10, 2017

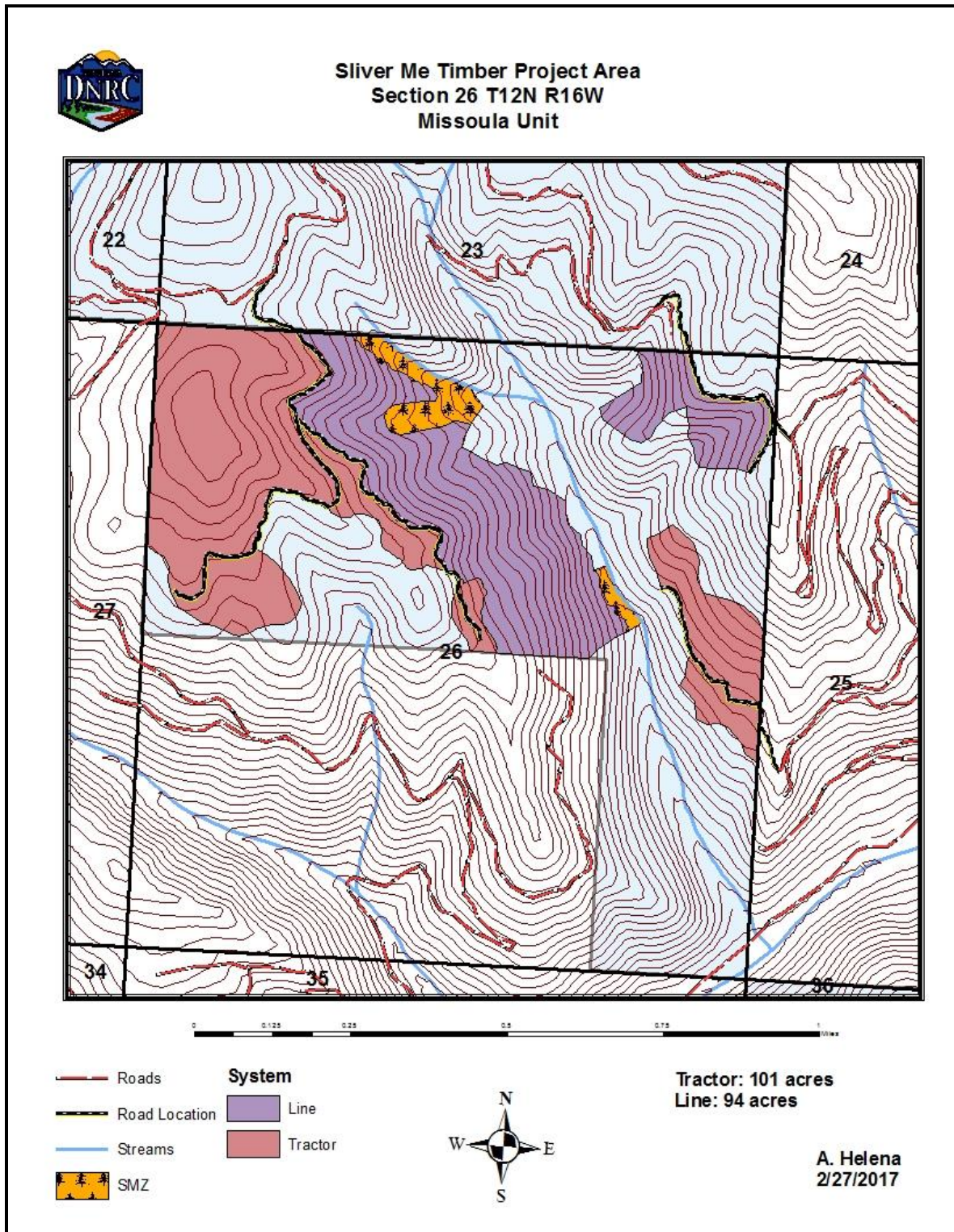
Signature: /s/ *Jonathan Hansen*

Attachment A- Maps

A-1: Timber Sale Vicinity Map



A-2: Timber Sale Harvest Unit



Robert and Andrea Nall
11657 Cramer Creek Road
Clinton, MT 59825

April 19, 2016

Department of Natural Resources and Conservation
Attn: Amy Helena
Missoula Unit
3206 Maverick Lane
Missoula, MT 59804

Re: Silver Me Timber Timber Sale – Initial Proposal

Dear Ms. Helena,

Thank you for speaking with me yesterday. After speaking with Steve Kloepzel, Nature Conservancy, and on further reflection, I thought it best to send my thoughts in writing. I want to be clear that I fully support the State's sale of timber for the objectives noted in your Initial Proposal. I hope my concerns can be addressed prior to your final decision/plan.

My concerns are as follows:

1. Potential impact on the creek that is our source of domestic water supply.
 - a. We recently installed a new water storage and treatment system to address sediment issues. I want to be assured that no additional sediment flow will occur as a result of the logging activity. I understand you will propose a 100' buffer from the creek for activity. Will this include silt fencing?
 - b. Should we encounter an increase in sediment flow after the logging activity do we have any recourse to the logging operator or the State?
2. Proposed road access.
 - a. I understand road access to the State Property will be through the gate on Cramer Creek Road that gives access to Nature Conservancy property. This gate is located past our home on Cramer Creek Road. Mr. Kloepzel was very helpful in explaining we do not have the right to use this gate and Nature Conservancy property to access that portion of our property which sits uphill from our home and has no road access. One old logging road from the gate meanders through our property and I had hoped to gain permanent access for recreational purposes. I understand this is not going to happen. However, Mr. Kloepzel mentioned that there would be some kind of shared locking system on the gate during the logging activity. I would like to have access during the logging activity so that I can observe the work. I want to be confident our property is not being used for access and that the creek is being protected. I don't want to put words in Mr. Kloepzel's mouth but he seemed to imply that I may be able get access for that temporary period.
 - b. I understand a portion of Cramer Creek Road will be improved to accommodate the logging traffic. Cramer Creek Road is an unmaintained County road. We like it that way as it discourages high speed traffic. I am concerned that improvements may lead to vehicle traffic that is dangerous to children and pets along the stretch of the road that passes through our property. In addition, increased logging traffic will result in more dust. I would ask that (1) permanent signs be installed at our property boundaries

Re: Silver Me Timber Timber Sale – Initial Proposal
Page Two

indicating a speed limit of 10 MPH and to be alert for children; (2) speed bumps be installed on the road in front of our home; (3) dust control material be placed along the stretch of road where it passes through our property; and (4) the logging operator be instructed to keep all employees and vendors aware of the need to slow down as they pass through our property. We have established a good relationship with the Kennicott/RioTinto mine manager, employees and their vendors. They are very respectful of speed and dust as they drive through our place. I hope the same can occur with the logging operator.

- c. We have now cattleguards and fencing to keep range cattle off our property. I hope I can be assured any damages that might occur will be repaired in a timely fashion.
- d. I understand you hope to propose a harvest area that will have minimal impact our views of the surrounding area. I really appreciate your desire to minimize the impact on our home and look forward to a final plan that keeps the views in our beautiful valley intact.

Thanks again for the time you spent discussing the Initial Proposal with me. As I mentioned, I would appreciate all Notices and other correspondence be sent to both our home on Cramer Creek and our home in the Seattle area which is 17607 – 105th Avenue SE, Snohomish, WA 98296.

Our two parcels on Cramer Creek Road are Tax ID #1102105 (T12NK16W-25) and Tax ID # 2011091602 (T12NK16W-25). I have attached the Easement Exhibit from our easement on that portion of the State land in your Initial Proposal for your reference.

Sincerely,



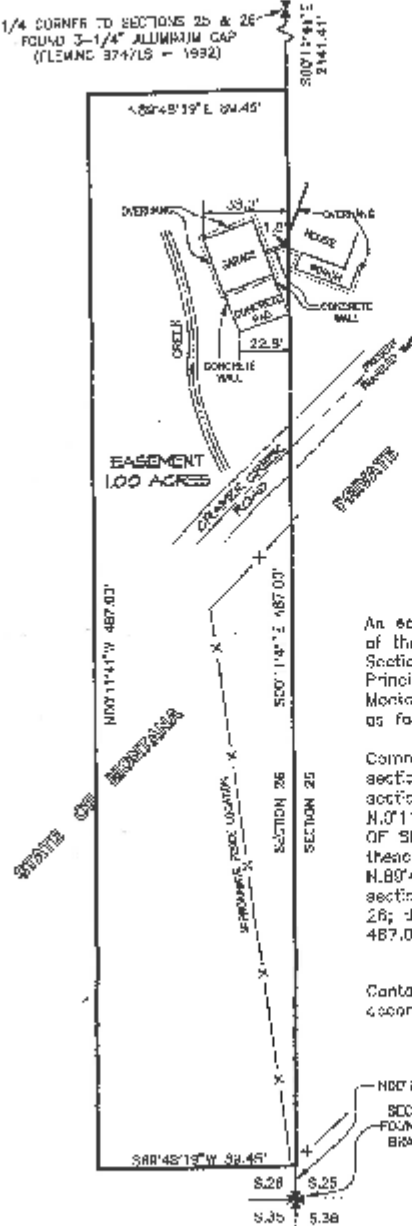
Robert Nall
robbnall@gmail.com
425-422 2529

EASEMENT EXHIBIT

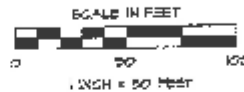
HEATHER ALMQUIST - CRAMER CREEK

SE1/4 SE1/4 SECTION 26, T12N, R16W, P.M.M., MISSOULA COUNTY, MONTANA

1/4 CORNER TO SECTIONS 25 & 26
FOUND 3-1/4" ALUMINUM CAP
(FLEMING 3747LS - 1992)



DECEMBER 16, 2004
BASIS OF BEARINGS:
COS 4107



LEGAL DESCRIPTION

An easement located in the Southeast one-quarter of the Southeast one-quarter (SE1/4SE1/4) of Section 26, Township 12 North, Range 16 West, Principal Meridian Montana, Missoula County, Montana, and being more particularly described as follows:

Commencing at the section corner common to sections 25, 26, 35 and 36; thence along the section line common to Sections 25 and 26 N.0°11'41"W., 15.00 feet, to the TRUE POINT OF BEGINNING; thence S.80°48'19"W., 89.45 feet; thence N.0°11'41"W., 487.00 feet; thence N.80°48'19"E., 89.45 feet, to a point on the section line common to said sections 25 and 26; thence along said section line, S.0°11'41"E., 487.00 feet to the TRUE POINT OF BEGINNING.

Containing 1.00 acres, more or less, and all according to the attached plat.

N.0°11'41"W. 15.00'
SECTION CORNER
FOUND 3-1/2" BLW
BRASS CAP (1872)



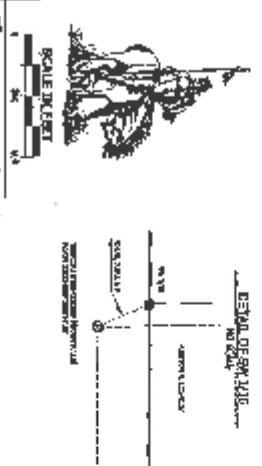
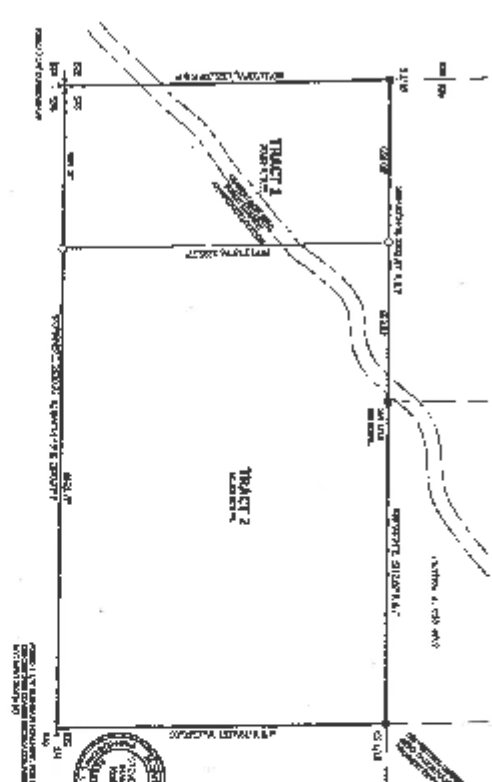
3115 HUNNELL ST. P.O. BOX 1760
MISSOULA, MONTANA 59806
406/735-1000 FAX 406/735-0870

PREPARED AT THE REQUEST OF: HEATHER ALMQUIST PCI PROJECT NUMBER: 7351-04

6253

CERTIFICATE OF SURVEY

A FAMILY TRAMPER LOCATED IN THE SOUTHWEST QUARTER OF SECTION 25, TOWNSHIP 22 NORTH, RANGE 24 WEST, PIKE, MISSOURI COUNTY, MISSOURI



FILED AT CLARK COUNTY, MISSOURI
RECORDED IN BOOK 10, PAGE 100
DATE OF RECORDING: 10/10/2000
BY: CLARK COUNTY CLERK
CLARK COUNTY, MISSOURI

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6253

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

Southwestern Land Office - Missoula Unit



STEVE BULLOCK, GOVERNOR

STATE OF MONTANA

PHONE: (406) 542-4211
FAX: (406) 542-5807

5205 MAVERICK LANE,
MISSOULA, MT 59814

6/20/2016

Robert & Andrea Nail
11657 Cramer Creek Road
Clinton, MT 59825

Mr. Nail,

DNRC received your letter regarding your concerns about the Sliver Me Timber-Timber Sale proposal. In order to ensure we adequately address each concern, this response will include your original comment first followed by the DNRC response (in bold and *italics*).

My concerns are as follows:

1. Potential Impact on the creek that is our source of domestic water supply.
 - a. We recently installed a new water storage and treatment system to address sediment issues. I want to be assured that no additional sediment flow will occur as a result of the logging activity. I understand you will propose a 100' buffer from the creek for activity. Will this include silt fencing?
 - b. Should we encounter an increase in sediment flow after the logging activity do we have any recourse to the logging operator or the State?

Silt fencing is a common Best Management Practice (BMP) to mitigate sediment delivery to streams during instream construction activities such as culvert installations. No instream channel work is proposed on this stream and as a result, no silt fencing will be used as a mitigation. DNRC follows all rules and regulations as they pertain to harvesting adjacent to streams, lakes and other bodies of water to protect water quality. Commonly referred to as the Streamside Management Zone Law, the practices contained therein have been repeatedly demonstrated to effectively mitigate sediment delivery to streams during timber harvest. I've included a guide to the Streamside Management Zone Law and Rules as well as Water Quality BMPs For Montana Forests in this packet as informational material. In addition to those two references, we also follow The Montana Administrative Rules for Forest Management (ARMs) and the Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan (HCP). I can make both guidance documents available to you at your request.

2. Proposed road access.

- a. I understand road access to the State Property will be through the gate on Cranier Creek Road that gives access to Nature Conservancy property. This gate is located past our home on Cranier Creek Road. Mr. Klopzel was very helpful in explaining we do not have the right to use this gate and Nature Conservancy property to access that portion of our property which sits uphill from our home and has no road access. One old logging road from the gate meanders through our property and I had hoped to gain permanent access for recreational purposes. I understand this is not going to happen. However, Mr. Hoepzel mentioned that there would be some kind of shared locking system on the gate during the logging activity. I would like to have access during the logging activity so that I can observe the work. I want to be confident our property is not being used for access and that the creek is being protected. I don't want to put words in Mr. Hoepzel's mouth but he seemed to imply that I may be able get access for that temporary period.

The road system referenced in the above paragraph is located on The Nature Conservancy property. DNRC holds a permanent easement to the road system; however we are not legally permitted to grant other users motorized access on The Nature Conservancy's land. DNRC ownership in that area is currently restricted to non-motorized public use only, and that designation would be maintained during and post-harvest.

- b. I understand a portion of Cranier Creek Road will be improved to accommodate the logging traffic. Cranier Creek Road is an unmaintained County road. We like it that way as it discourages high speed traffic. I am concerned that improvements may lead to vehicle traffic that is dangerous to children and pets along the stretch of the road that passes through our property. In addition, increased logging traffic will result in more dust. I would ask that (1) permanent signs be installed at our property boundaries indicating a speed limit of 10 MPH and to be alert for children; (2) speed bumps or installed on the road in front of our home; (3) dust control material be placed along the stretch of road where it passes through our property; and (4) the logging operator be instructed to keep all employees and vendors aware of the need to slow down as they pass through our property. We have established a good relationship with the Kennicott/Repetto mine manager, employees and their vendors. They are very respectful of speed and dust as they drive through our place. I hope the same can occur with the logging operator.

(1) You are correct, that portion of Cranier Creek is an unmaintained county road. DNRC does not have the authority to set the speed limit or install permanent speed limit signs on County Roads. You will have to contact the County with your request.

(2) DNRC cannot install speed bumps on a County Road.

(3) DNRC intends to apply dust abatement as part of the timber sale contract if hauling occurs during times of year when dust is produced.

(4) DNRC has the ability to establish a speed restriction for its purchasers. A 10 mph speed limit for portions of the haul route would be written into the contract.

- c. We have new cattle guards and fencing to keep range cattle off our property. I hope I can be assured any damages that might occur will be repaired in a timely fashion.

If damage to improvements were to occur as a result of our purchaser, they would be repaired in a timely fashion.

Thank you for taking the time to comment on the proposal. If you would like, I will continue to keep you informed throughout the MEPA process. Please feel free to contact me at any time.

Sincerely,



Amy Helena
Forest Management Supervisor
Miesoula Unit, Montana DNRC